

WHAT IS CLAIMED IS:

1. A method for analyzing a drive system, comprising:  
successively applying a plurality of noise signals to the  
drive system as input signals, the noise signals covering  
different frequency ranges; and  
determining a transfer function of a target system within  
the drive system in accordance with the noise signals applied  
to the drive system in the applying step.
  
2. The method according to claim 1, wherein the noise  
signals have different intensities.
  
3. The method according to claim 2, further comprising  
optimizing the intensities by increasing the intensities in  
steps until a maximum value of a limiting parameter of the  
drive system is near a limiting value.
  
4. The method according to claim 1, wherein the noise  
signals include noises in several frequency bands that always  
begin at a same lower cutoff frequency and end at a different  
upper cutoff frequency, the input signal having a widest  
frequency band completely covering a frequency range to be  
tested.
  
5. The method according to claim 1, wherein the noise  
signals include one of (a) non-overlapping frequency ranges  
and (b) frequency ranges that overlap slightly, the frequency  
ranges together covering a frequency range to be tested.
  
6. The method according to claim 1, wherein the transfer  
function of the target system in an open control loop is  
determined in accordance with difference signals applied to  
the target system and corresponding output signals.
  
7. The method according to claim 6, wherein the  
determining step includes evaluating a frequency-dependent

attenuation and a phase shift between the difference signals and the output signals.

8. A device for analyzing a drive system, comprising:  
an arrangement configured to successively apply a plurality of noise signals to the drive system as input signals, the noise signals covering different frequency ranges; and  
an arrangement configured to determine a transfer function of a target system within the drive system in accordance with the noise signals applied to the drive system.

9. A device for analyzing a drive system, comprising:  
means for successively applying a plurality of noise signals to the drive system as input signals, the noise signals covering different frequency ranges; and  
means for determining a transfer function of a target system within the drive system in accordance with the noise signals applied to the drive system.